Niertuberculose

Weggeman, Wilhelm Gerrit

SUMMARY.

The case-reports of 185 sufferers of renal tuberculosis from the years 1928 up to and included 1939 were studied and a further examination instituted, which was closed August 1942. The operation- and autopsy specimens and slides were examined macroscopically and microscopically.

Of the 185 patients the process was double-sided with 21; 44 had already passed through a manifest lung-tuberculosis or pleuritis and 27 an osteo-articular tuberculosis, the interim varying between 2 months and 28 years.

When tuberculosis has manifested itself extrapulmonically in a certain patient, it seems to have a tendency to repeat this in another organ.

As far as the prognosis is concerned it appeared that for our group the mortality has only slightly increased if extrapulmonic tuberculosis was present in the anamnesis; if, however, there had previously been a notable lung- or pleuratuberculosis the death-rate was increased by one half (see table I, p. 14).

Of the antecedent symptoms frequent — and often painful — miction comes to the fore in cases of renal tuberculosis; patients suffering from this should be speedily referred to an urologist.

The duration of the initial symptoms was 28 months on an average; with patients suffering from one-sided renal tuberculosis the anamnesis was about one year shorter than with the double-sided cases.

Renal tuberculosis may take a course symptomless for the patient; it may be discovered accidentally in a medical examination; with those suffering from osteo-articular tuberculosis the urine should be examined regularly.

Sufferers from renal tuberculosis should undergo an X-ray examination of the lungs.

In our series the combined lung and renal tuberculosis had a bad prognosis (see table II, p. 25).

Table III (p. 26) shows us — supplementing table I — that a cured lung tuberculosis gone through before does not unfavourably influence the mortality of the sufferer from renal tuberculosis. This is an argument in favour of a so-called primary renal tuberculosis being really a secondary one.

The coalescence of a renal and an osteo-articular tuberculosis was prognostically very unfavourable. (see table IV, p. 40). If, however, the osteo-articular tuberculosis has been cured meanwhile the death-rate certainly does not become higher than when this anamnesis is lacking (see table V, p. 32).

The method of the examination of urine for tubercular bacilli and the results obtained with this are discussed (pp. 36-43) ZIEHL-NEELSEN staining of a so-called collective specimen has proved to be a reliable method.

The tests of AMBARD, ADDIS, VAN SLYKE, ROWNTREE and VOLHARD, and the results obtained with them are described and compared (pp. 46-56); they have lost much of their importance with renal tuberculosis.

Epididymitis tuberculosa was found with 39 out of 110 male patients; with 13 out of the 39 the process was double-sided.

We too found out that the tuberculosis of the epididymis and the kidney need not be homolateral. Prostatitis tuberculosa was diagnosed with 21 men.

Table VI (p. 61) shows that with men genital tuberculosis materially decreases the operability of renal tuberculosis and increases mortality.

Only in 3 out of these 39 cases of epididymitis tuberculosa the latter was both one-sided and the only complication of the renal tuberculosis. For those cases epididymectomy is recommended.

Solitary epididymitis tuberculosa should be removed surgically. Of our 185 sufferers of renal tuberculosis, genital tuberculosis was diagnosed with 52 out of 110 men and with 75 women not one salpingitis or salpingo-oophoritis tuberculosa was observed.

The mortality of the women amounted to 21.3 % and that of the men to 35.5 %. It is obvious that the genital tuberculosis of the men is responsible for this difference.

Peritonitis tuberculosa is rare with renal tuberculosis, but can easily occur after a nephrectomy in case of a badly disturbed cure of the wound (4 cases).

The lymphadenitis calcificata, observed on the survey-Roentgenogram is as a rule not discovered during a nephrectomy.

A calcified tuberculous focus in the kidney can be small, without this kidney having undergone any further tubercular change; so renal tuberculosis can show a great tendency towards recovery.

From the history of 3 cases of so-called autonephrectomy with calcification it may be concluded that this condition is not

harmless; even though canalicular spreading is prevented there may still be hematogenic or lymphogenic spreading.

The coalescence of a spondylitis and lymphadenitis tuberculosa with renal tuberculosis (2 cases) shows a trinity that might be explained by a retrograde lymphogenic spreading of the tuberculosis (theory of TENDELOO).

The images of the excretion pyelogram are less reliable than those of the retrograde pyelography.

As a test of the renal function the intravenous pyelography is of little value with renal tuberculosis.

The pneumorenography as by ROSENSTEIN is discussed. This method is seldom applied.

From 7 cases (all of them men) it is shown that the insertion of the cystoscope in case of an existing stricture of the urethra may have highly injurious effects, both local and general (miliary dissemination). If gentle insertion of a cystoscope fails, the attempt should be given up.

If there is a defect in the mucous membrane of the urethra, liquids — e.g. anesthetics — that must be injected into the urethra may be brought directly into the lymphatics; this is illustrated with an X-ray photo: lymphatic efflux.

When discussing cystoscopy it is urged to apply this instrumental method as sparingly as possible.

Tubercular changes of the mucous membrane of the bladder and the orifices of the ureters with the frequencies with which they occurred are discussed.

Catheterization of the ureter is as a rule carried out both on the presumably diseased and on the presumably healthy side. This is deemed necessary for a correct diagnosis, especially in initial stages of renal tuberculosis.

The dangers connected with the catheterization of the ureter and the injecting of the contrasting liquid are illustrated from a striking case.

The results of the "division des urines" (pyuria, tubercular bacilluria, indigo-carmine test, urea concentration) are discussed. It appears (see table VII, p. 135) that the defining of each of the 4 symptoms mentioned, separately can be insufficient and even misleading, but that together they have always led up to the correct diagnosis.

Much value is attached to the retrograde pyelography. The dangers attending this and the precautions to be taken are discussed. An interpretation of pyelograms is given with the help

of X-ray photos. It has appeared that the separation of the urines and pyelography clearly brought to light small tubercular foci that might easily be overlooked in the extirpated and cleft kidney. It has also been shown — by comparison of the X-ray photo with the anatomic specimen — that the contrasting liquid can penetrate into the tubercular tissue. It has appeared that the so-called auto-amputation of a calix major may be the cause of renal colic. There are cases in which miction complaints occurred with an unimpaired bladder, which had disappeared after the nephrectomy, so that a renovesical reflex might be inferred.

The complete urologic examination is necessary to differentiate renal tuberculosis in its initial stage from papillitis necroticans, pyelitis cystica, juvenile malignant sclerosis, pyelum diverticulum and pyelosinusal efflux of the contrasting liquid.

If only tubercular bacilli are found, but pyuria and unsettled functioning of kidneys are completely absent or nearly so and the pyelogram is normal, one should wait and see. We have never met with a case of tubercle bacilluria s.s..

We should be careful not to make a diagnosis merely from a pyelogram; with an X-ray photo one cannot dabble in pathologic anatomy. A number of ureterograms are described; by comparing the anamnesic data, the particulars of the catheterization of the ureter and the pathologic-anatomic specimens to these pictures, the conclusion may be drawn that the dilatation of the ureter is more often due to hypotony of the circular musculature than to hypertrophy caused by stenosis; in the same way hypotony of the longitudinal musculature leads to extension of the ureter. In a few cases pyelum and ureter look as if they are moth-eaten. It is difficult to decide whether a spasm of the bladder or the ureterostoma — if these are not changed — is the consequence of a renovesical reflex or of a local irritation on account of the changed urine.

Sometimes the compensating hypertrophy of the healthy kidney can easily be read from the pyelogram.

The shortening of the ureter occurred but twice in our photographic material and was but mildly pronounced. This shortening will generally be attended by stenosis of the ureter and cannot than be photographed.

The phenomenon known in the literature as pyelovenous reflux is discussed in detail. From pyelograms with this phenomenon it is argued that it is better to speak of a pyelolymphatic efflux. This phenomenon begins with a perforation, a rupture in the

angulus calico-papillaris or fornix corner. The liquid that flows out gets into the sinus renalis: pelvisinusal efflux or fornix efflux. The liquid that has penetrated into the wall of the pyelum and into the sinus renalis is carried off through ducts, which as appears from anatomic characteristics are lymph vessels. Based on HELMKE's investigation into acute and chronic retention of urine, it is argued that the lymphatic efflux through inversion of the lymph flow may turn into a pyelovenous efflux. Then it must be assumed that sub-endothelial lymph vessels in the veins are connected with the concomitant perivascular lymph vessels. We were able in one case of lymphangiosis carcinomatosa of a kidney, caused by retrograde lymphogenic spreading from a bronchial carcinoma, to find a picture (see plate 44) that made us think of HELMKE's splendid photos.

The views of FUCHS and others, which have led to a physiological fornix function being assumed, are contested point by point. The inquiry into the pyelolymphatic efflux leads of itself to an exposition of the system of lymphatics of the kidney, in which the splendid results that KAISERLING obtained with his perfect methods are pointed out.

When discussing the pathogenesis of renal tuberculosis we shall also have to recall some of the phenomena mentioned above. For a correct conception, the pyelotubular reflux and the resorption by the normal mucous membrane of the urinary canals are briefly discussed in this connection.

A good insight into the pyelolymphatic efflux enables us to understand which dangers adhere to the retrograde pyelography and the operative treatment of renal tuberculosis (tubercular septicemia and infection of the wound) and should guide us when taking precautions against these dangers.

The insertion of the cystoscope involves far more risks than the retrograde pyelography; this appears from the histories of the disease of 7 patients who suffered harm from the instrumental urologic examination; all seven of them were men.

The gold therapy of renal tuberculosis has not brought what the earlier investigators had hoped for and the later authors only mention some organotrope action. Tuberculin is deemed to be decidedly harmful. These two remedies have not been used for our patients. X-ray treatment has been admitted into our therapeutic arsenal as far as epididymitis tuberculosa is concerned. If we understand the matter well the organotrope action resulting from this is favourable, provided — and this seems to us to

be the difficulty — the dosage is adapted to the special case.

The injection therapy of the epididymitis tuberculosa as by CALOT and DURANTE is briefly discussed; it was not applied to the patients of our series.

Of the nephro-ureterectomy the essential demands are mentioned and the operation is planned.

Nephrectomy "par morcellement" may lead to serious infection of the wound, tuberculosis peritonei and a fatal miliary dissemination; this is illustrated with an example.

First of all it should be tried to ligate the pedicle of the kidney with the surrounding tissue in which the lymph vessels run.

The tuberculous ureter should be removed entirely to prevent an empyema of the distal ureter stump. This does not aim at preventing the rise of tuberculous fistulas; the latter are rather the result of small infections of the wound, caused by manipulating kidney and ureter. The suturing of the distal ureter stump into the skin wound is disapproved of.

The several incisions — lumbal, dorsal and ventral — via which nephro-ureterectomy can be performed, are discussed. On the whole the oblique, single lumbo-iliac incision was applied; this incision is situated segmentally and sacrifices no nerves. Only in 3 out of 157 nephro-ureterectomies a cross ventral incision was chosen. Extirpation of a tuberculous pyonephrosis is a risky undertaking; 2 of the 18 cases died of complications that were a direct consequence of the difficult operation.

A number of post-operative particulars are briefly discussed. Of the 159 patients that underwent operative treatment 13 died in hospital or at least in the next few months.

From later examinations it appears that of the 146 patiënts left 21 died in a period extending from nearly 3 to nearly 15 years after the operation.

Of the 26 patients not operated upon 5 remained alive in the same period; these were often very bad cases.

Table VIII (p. 246) teaches us that women with renal tuberculosis stand a better chance than men.

It goes without saying that the combination of the uro- and the genital tuberculosis with men is assumed to be the cause of this. In the follow-up examinations of the patients who remained alive attention was paid to subjective complaints (frequent miction), the progeniture, the temperature, the sedimentation rate, blood pressure, number and differentiation of the leukocytes, the percentage of urea in the blood, pyuria, tubercle bacilluria, genital

tuberculosis, cystitis tuberculosa and the condition of the kidney that remained.

After a short discussion of caseation and allergy and after having pointed out the influence which an obstruction of the discharge of the lymph can possibly have on the caseation, the effect of the gold-, tuberculin- and Roentgentherapy on the tuberculous process is sketched. The views of TENDELOO regarding the tuberculous and the epifocal or collateral inflammation are briefly rendered.

Armed with the above-mentioned notions it is argued that the so-called nephrocirrhosis Kochobacillaris of FEDOROW is not a separate picture and that the cases which FEDOROW describes will not bear examination. The sclerotic form is looked upon as the final stage of a tuberculous and still more of an epituberculous inflammation with much production. Of the 108 specimens examined of our series, there are 3 with a cavernous wall in which the tuberculous structures must be searched for; 2 of these 3 concern pomade kidneys.

Strongly exudative forms — analogous to the tuberculous, gelatinous pneumonia of LAËNNEC — we did not come across in renal tuberculosis in this solid organ, which is surrounded by a capsula. Such pictures we often saw in the wall of a tuberculous ureter (a hollow organ). In 4 cases we found in the tuberculous ureter a gradual change from the — apparently — non-specific, exudative inflammation to more specific structures.

In between these extremes with predominantly sclerous and exudative forms lies the granular tissue in which the alteration, the exudation and the regeneration are so proportioned that the typical tuberculous structure results from them. In its finest form this is met with, with the characteristic arrangement, in the primitive tubercle; but also when the necrosis, the epithelioid cells, the lymphocytes and the LANGHANS's cells are found dispersed one has to deal with specific structures.

From 4 examples we must conclude that an epifocal inflammation, which already has a productive character, can assume a typically tuberculous structure (probably because more toxin is supplied). It is remarkable that in 2 cases we could observe that already formed connective tissue cells assume the epithelioid form and arrange themselves frontally a few rows deep.

With the so-called tuberous, disseminated form of renal tuberculosis the absence of central caseation in the tubercles is generally accepted as characteristic, so that formation of caverns

would not occur macroscopically either. Among the 108 specimens of our series there are 4 that in accordance with current standards might be termed tuberous. In all 4 there was, however, a caseous tuberculosis in the marrow papilla concerned; whereas there usually run a few "streets" of tubercles from the caseous focus to the periphery, the whole lobus was here crammed with tubercles. At least as important as the above-mentioned characteristics seems to us the observation that in these cases the formation of connective tissue i.e. the productive component of the inflammation is lacking.

The nephritis tuberculosa of WILDBOLZ, or anything resembling it, we did not come across. We regret that several authors have drawn up separate forms of renal tuberculosis we never came across in a pure form and which can all be brought back to the chronic, caseous renal tuberculosis.

From 8 instances of our series it is illustrated that this caseous-cavernous renal tuberculosis begins at the marrow papilla i.e. at the angulus calicopapillaris. Of one case that falls outside our series and might be taken as the very first stage of renal tuberculosis, we give the photomicrograph of the slide concerned. The cavern which arises at this place can very soon communicate with the pyelum (from this pyelography derives its great value). From here the process spreads per continuitatem to the periphery of the lobus or renculus and canalicularly to the other papillae. One gets the impression that the radial lobar spreading follows the lymphroads and that the peripelvic fat stops the spreading from the fornix corner to the sinus renalis.

We did not succeed in finding a satisfactory explanation for the fact that renal tuberculosis begins at the papilla. The hematogenic pathogenesis remains incomprehensible to us, also if we call in the help of arteriovenous anastomoses; no more does the retrograde lymphogenic way of TENDELOO, combined with the lymphvessels communicating between the marrow papillae (NICOLESCO), explain why the marrow papilla is and the rest of the lobus is nót the predilection place. We must also fail to answer this question when we start reasoning on the urogenic or canalicular theory and in doing so must assume that the original cortical tubercle does not lead up to a cortical cavern.

MEDLAR has shown that the miliary tubercles in the kidney can be cured; this holds both for cortex and medulla. LIEBERTHAL refers to MEDLAR, but we cannot follow him in his argument in favour of a mixed hematogenic-urogenic pathogenesis.

The spreading from one papilla to another can be easily explained both urogenically and lymphogenically (NICOLESCO). This lymphogenic spreading causes a so-called autoamputation by closure of a calix major to be no safeguard for the other papillae.

As concerns the pathogenesis of urogenital tuberculosis a descending spreading i.e. in the direction in which the liquid flows (urine and sperm) is generally accepted. In connection with an ascending infection the vesico-ureteral reflux and the urethro-deferential reflux are discussed and the pyelotubulous reflux and the pyelolymphatic efflux once more come up for consideration. It is an established fact that a healthy ureterostium and a healthy colliculus seminalis are not easily passed upstream by tubercular bacilli. If they are ill reflux or intralacunar spreading is possible.

It is pointed out that the experiments of several authors were always aimed at a hematogenic or canalicular spreading and that in one of BAUMGARTEN's experiments in our opinion, in spite of this a lymphogenic spreading was observed.

ORTH's "Ausscheidungs" theory is accepted as supported by MEINERTZ. With this theory and the investigations of MEDLAR on cured miliary tubercles in the kidney, we can accept a tubercle bacilluria — though we have never met with such a case — on condition that a thorough urologic examination with pyelography has been made.

In a case of pregnancy combined with renal tuberculosis the nephrectomy was postponed till after the delivery.

When a tuberculous kidney is injured by external violence fatal complications may arise.